State of Wisconsin/Department of Transportation

RESEARCH PROGRESS REPORT FOR THE QUARTER ENDING: Jun 30, 2001

Program: SPR-0010(36) FFY99	**Part: II Research and Development**
Project Title: Non-Destructive Testing of Highway Bridge Structures for Purposes of Structure Evaluation	**Project ID:** 0092-00-15
Administrative Contact: Nina McLawhorn	**Sponsor:**
WisDOT Technical Contact: Error! Bookmark not defined.	**Approved Starting Date:** Dec 22, 1999
Approved by COR/Steering Committee: $49,745.00	**Approved Ending Date:** Nov 30, 2001
Project Investigator (agency & contact): Al Ghorbanpoor: UW-Milwaukee	

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Total study budget	Current FFY budget	Expenditures for current quarter	Total Expenditures to date
$49,745.00	**$16,581.66**	**$0.00**	**$0.00**

Progress This Quarter:

(Includes project committee mtgs, work plan status, contract status, significant progress, etc.)

Literature review for NDE methods has been completed. A list of methods reviewed was submitted previously. A summary of the methods has been prepared and will be included in the final report.

Continued laboratory studies on the ultrasonic, magnetic flux leakage, and impact-echo methods. These methods have shown greater potential for successful field applications. Both laboratory and field studies have shown the potential for these methods.

The FHWA's inspection training manual has been reviewed and a summary has been prepared. The summary was submitted previously.

Field testing of post-tensioned concrete structures has been performed using the magnetic flux leakage method. It has been shown that the method is capable of detecting small corrosion in the tendons of post-tensioned concrete structures. Additional field testing with other NDE methods needs to be explored.

Preparation of the final report/guideline is underway. A summary of literature review and NDE methods appropriate for bridge applications will be included in the report. The guide will provide basic tools needed for performing an effective assessment using non-destructive testing techniques. An outline for the guide is listed below.

Section 1 – Fundamentals of bridge inspection
- Duties, requirements, and responsibilities of the bridge inspector

Section 2 – General Evaluation of Concrete
- Problems and possible causes

Section 3 – General Evaluation of Steel
- Problems and possible causes

Section 4 – Evaluation of Bridge decks
- Non-destructive evaluation of bridge decks with both steel and concrete substructures

Section 5 – Evaluation of Steel Structures
- Evaluation of typical steel structures using non-destructive techniques

Section 6 – Evaluation of Concrete Structures

- Evaluation of typical steel structures using non-destructive techniques

Section 7 – Case Studies

Work Next Quarter:

Continue development of guidelines for use of NDE methods in bridges.

Circumstances affecting progress/budget:

None.

Gantt Chart:

MONTHS / TASKS	2000				2001			
	Qr. 1	**Qr. 2**	**Qr. 3**	**Qr. 4**	**Qr. 1**	**Qr. 2**	**Qr. 3**	**Qr. 4**
Review of Literature	_____ (100% completed)							
Equipment Acquisition		_____ (100% completed)						
Lab. Evaluation		_____ (100% completed)						
Field Evaluation					_____ (75% completed)			
Develop NDE Program						_____ (60% completed)		
Final Report							_____ (25% Completed)	

Note: Gantt chart shown in State Fiscal Year Quarters